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(54) **Lost-foam Casting of dual alloy engine block.**

(57) In a preferred embodiment of the invention, a process is disclosed for producing a compound aluminium alloy engine block casting (10) which comprises at least a piston-travel region (26) of a cylinder wall section (18) formed of a first alloy, preferably hyper-eutectic aluminium-silicon alloy, and a remainder including a crankcase section (12) and a water jacket wall (20) formed of a distinct second alloy, preferably hypo-eutectic aluminium-silicon alloy. The engine block casting (10) is made by a lost-foam process that employs an expendable pattern (32) formed of expanded polystyrene or the like. The pattern comprises a first runner system (50) for casting the first alloy to decompose and replace a portion of the pattern corresponding to the piston-travel region (26) of the casting, and a second runner system (60) for casting the second alloy to decompose and replace the remainder of the pattern (32). The first alloy and the second alloy are independently but concurrently cast into a single mould (30), such that the entire pattern (32) is duplicated, whereupon the alloys merge and fuse to form an integral casting (10). The preferred product

engine block casting (10) advantageously combines the high wear-resistance of the hyper-eutectic aluminium alloy in the cylinder wall section (18) and the reduced porosity and improved machinability of the hypo-eutectic alloy throughout the balance of the casting (10).

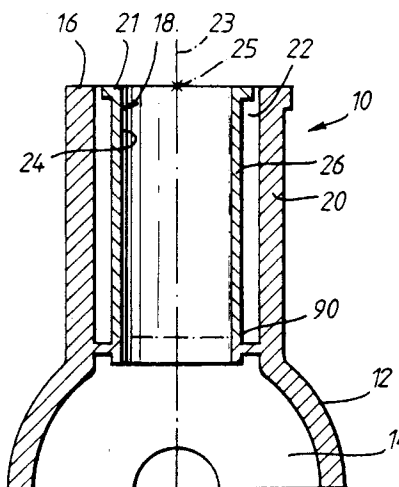
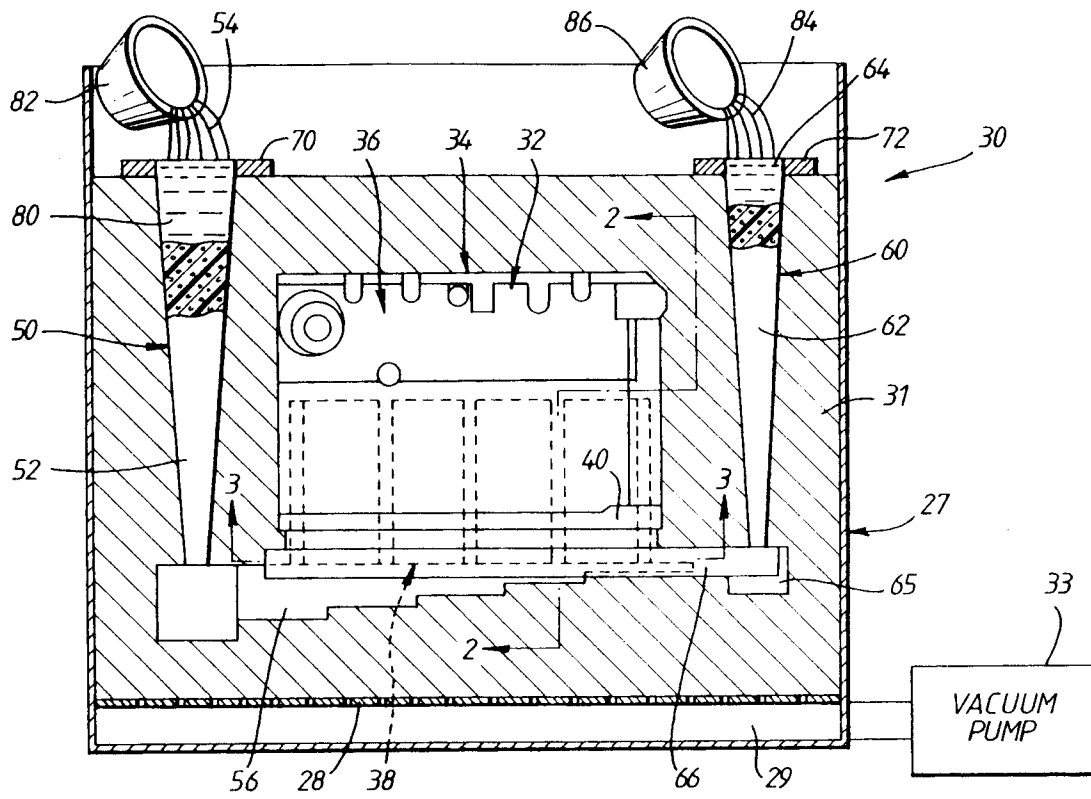


Fig. 6.

Fig. 1.





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EUROPEAN SEARCH REPORT

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EP 90 31 2429

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	WO-A-7 900 298 (CATERPILLAR TRACTOR CO.) 31 May 1979 * claims * * figures *	1-9	B22C9/04 B22C9/08 F02F7/00 B22019/16
D	& US-A-4 243 093 (CATERPILLAR TRACTOR CO.) 6 January 1981 ---		
Y	DE-A-2 854 958 (DAIMLER-BENZ AG) 10 July 1980 * claims 1,4 * * page 5, line 14 - page 6, line 11 * ---	1-9	
A	US-A-4 637 110 (YAMAGATA) 20 January 1987 * claim 1 *	1-9	
A	US-A-3 168 081 (BAUER) 2 February 1965 * column 2, line 22 - line 50 * ---	1-9	
A	PATENT ABSTRACTS OF JAPAN vol. 13, no. 204 (M-285)(3552) 15 May 1989 & JP-A-1 027 763 (AKEBONO BRAKE RES & DEV CENTER LTD) 30 January 1989 * abstract *	1-9	
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 24 AUGUST 1992	Examiner RIBA VILANOVA M.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			